

We claim:

1. A method for inhibiting recognition of cellular tissues by both CD8+ and CD4+ T cells, comprising introducing into a mammalian cell or tissue an isolated nucleotide sequence encoding HCMV US2, or a variant thereof which maintains the activity of US2, and wherein the binding domain recognizes:
  - (a) MHC class I heavy chains and MHC class II  $\alpha$  chains;
  - (b) DM- $\alpha$  chains; or
  - (c) MHC class I heavy chains, MHC class II  $\alpha$  chains, and DM- $\alpha$  chains.
2. The method of claim 1, wherein the binding domain of US2 is a native binding domain.
3. The method of claim 1, wherein the binding domain of US2 is a binding domain that has not been mutated to recognize MHC II molecules.
4. The method of claim 1, wherein the nucleotide sequence is introduced through the use of a viral vector.
5. The method of claim 1, wherein the US2 variant is a soluble US2 variant.
6. The method of claim 5, wherein the soluble US2 variant comprises a sequence as shown in amino acid residues 28 through 143 of SEQ ID NO: 3.
7. The method of claim 6, wherein the soluble US2 variant comprises a sequence as shown in amino acid residues 20 through 155 of SEQ ID NO: 3.
8. A recombinant expression vector comprising a promoter operably linked to a nucleotide sequence encoding an US2 protein, or a variant thereof, wherein a binding domain of the US2 has not been mutated to recognize MHC II molecules, which expression vector, when present in a mammalian cell, inhibits the ability of the cell to present antigens associated with MHC class II proteins to T cells.
9. A method of improving the persistence of a virus by introducing into the viral genome an isolated nucleotide sequence encoding a US2 protein, or a variant thereof which maintains the activity of US2, that has a binding domain that has not been mutated to increase recognition of MHC II molecules.

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10. A vector able to suppress MHC I and MHC II mediated immunity, which comprises an isolated nucleotide sequence that encodes a protein having the activity of native US2.

11. The vector of claim 10, wherein the vector is a viral vector.

12. The vector of claim 11, wherein the vector is an adenoviral vector.

13. The vector of claim 11, wherein the vector is a retroviral vector.

14. The vector of claim 10, wherein the protein having the activity of native US2 is a soluble US2 protein.

15. A method of preventing or treating an autoimmune disease, comprising administering to a subject a therapeutically effective amount of US2 of claim 10.

16. The method of claim 15, wherein the autoimmune disease is mediated by MHC II molecules.

17. A method of improving gene therapy, comprising administering to a subject the vector of claim 10.

18. The method of claim 17, wherein the vector also comprises a nucleotide sequence that codes for a therapeutic product.

19. A method for inhibiting recognition of cells or tissues by both CD8+ and CD4+ T cells, comprising introducing into a mammal a purified US2 protein, or a therapeutically effective fragment thereof.

20. The method of claim 19, wherein the therapeutically effective US2 fragment is a soluble US2 fragment.

21. The method of claim 19, wherein the purified protein is exogenously supplied.

22. The method of claim 19, wherein the purified protein is expressed from a recombinant cell.

23. A purified soluble protein having US2 protein biological activity, and comprising an amino acid sequence selected from the group consisting of:

- (a) residues 28 through 143 shown in SEQ ID NO: 3;
- (b) amino acids sequences that differ from those specified in (a) by one or more conservative amino acid substitutions; and
- (c) amino acid sequences having at least 70% sequence identity to the sequences specified in (a) or (b).

24. An isolated nucleic acid molecule encoding a protein according to claim 23.

25. A soluble protein according to claim 23, comprising the amino acid sequence shown in SEQ ID NO: 5.

26. A recombinant nucleic acid molecule comprising a promoter sequence operably linked to a nucleic acid sequence according to claim 24.

27. A cell transformed with a recombinant nucleic acid molecule according to claim 26.

28. An isolated nucleic acid molecule encoding a soluble US2 protein.

29. A method for inhibiting a CD4+ mediated immune response, comprising introducing into a mammal a purified US2 protein, or a therapeutically effective fragment thereof.

30. The method of claim 29, wherein the therapeutically effective US2 fragment is a soluble US2 fragment.

31. A method for inhibiting an immune response in a subject, comprising administering to the subject an amount of a US2 protein, sufficient to inhibit the immune response.

32. The method according to claim 31, wherein the protein is administered in the form of a pharmaceutical composition.

33. The method according to claim 31, wherein the immune response is a CD4+ mediated immune response.

34. The method according to claim 31, wherein the immune response is selected from the group consisting of autoimmune responses, transplant immune responses, and gene therapy immune responses.

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35. The method of claim 31, wherein the US2 protein is soluble.
36. The method of claim 35, wherein the soluble US2 protein is the soluble US2 protein of claim 23.
37. A composition comprising the protein according to claim 23.
38. A pharmaceutical composition comprising the protein according to claim 23 and a pharmaceutically acceptable carrier.

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